

Francesco Giuli's Curriculum Vitae

Personal Information

First Name: Francesco
Last Name: Giuli
Mail Address: francesco.giuli@cern.ch
Linkedin profile: <https://www.linkedin.com/in/francesco-giuli-033301137>
ORCID ID: 0000-0002-8506-274X
Skype Contact: Francesco Giuli
Telephone Numbers: +393482503726

Employments

2024 - present	Postdoctoral Research Associate (RTDa), INFN and University of Rome “Tor Vergata”, Italy Topics: <i>Measurement of the properties of symmetry (C,P,T) of the top quark and of the b-quark from the top quark decay using Machine Learning techniques</i>
2022 - 2024	Senior Research Fellow, CERN Topics: <i>Work on the Run 3 trigger menus and dedicated HLT triggers algorithms based on Machine Learning techniques for muon reconstruction, Z mass measurement, α_S extraction from Z p_T distribution at 8 TeV and measurement of inclusive $t\bar{t}$ and W^\pm, Z cross sections with early Run 3 data</i>
2021 - 2022	Postdoctoral Research Associate, University of Brandeis, USA Topics: <i>Vector Boson Scattering measurements (production of same-sign WW and polarized $WZ \rightarrow 3\ell$), inclusive $t\bar{t}$ cross section at $\sqrt{s} = 5.02$ TeV in the $\ell + \text{jets}$ channel and characterization and installation of ITk strips modules</i>
2018 - 2021	Postdoctoral Research Associate (research-grant contract, band IV), INFN and University of Rome “Tor Vergata”, Italy Topics: <i>W + c cross section measurement with the full Run-2 statistics; Search for Higgs-like bosons decaying via $h' \rightarrow WW \rightarrow Wcs$, WcX and $Wc\bar{c}X$; ATLAS Phase 1 upgrade of the muon trigger and BIS78 chambers project</i>

Education

2014 - 2018	Ph.D. position at the University of Oxford with the ATLAS Oxford group, UK (PhD defence date: 09/11/2018) Thesis Title: <i>Study of the Drell-Yan process with the ATLAS detector at the LHC</i> Supervisors: Dr. J. Rojo, Prof. A. Cooper-Sarkar External Supervisor: Dr. E. S. Rizvi
2013 - 2014	Master thesis in Physics at “Sapienza” University of Rome with the ATLAS Rome 1 group, Italy Thesis Title: <i>Search for signals from additional pseudo-scalar Higgs bosons with the ATLAS experiment at the LHC</i> Supervisors: Prof. S. Giagu, Dr. Marco Rescigno Final Mark: 110/110 cum laude
2009 - 2012	BSc in Physics at “Sapienza” University of Rome, Italy Thesis Title: <i>The $\nu_\mu \rightarrow \nu_\tau$ neutrino oscillation with the OPERA experiment</i> Supervisor: Prof. P.F. Loverre Final Mark: 101/110

Me in a nutshell

- Experimental particle physicist working for the ATLAS Collaboration
- Strong passion for basketball, hiking, skiing and choir music
- Contribution to 53 papers (23 within ATLAS) and 22 ATLAS CONF/PUB notes
- Analysis contact for 3 ATLAS analyses and contact editor of 2 ATLAS papers

- 35 talks at international conferences, 25 talks during workshops/national conferences and 8 posters
- Advisor of 13 Ph.D., 9 master, 2 ATLAS Qualification Task, 1 CERN Summer and 2 high-school student(s)

Research Appointments and Leadership Positions

2023 - present	Referee for Nuclear Physics Polish Academy of Sciences
2023 - present	Abilitazione Scientifica Nazionale Professore Seconda Fascia (Associate Professor) - Settore Concorsuale 02/A1
2023 - present	Convenor of the ATLAS W/Z Physics Group
2022 - 2023	Member of the ATLAS Data Preparation Coordination group
2022 - 2023	Member of the ATLAS Trigger Coordination group
2022 - 2023	ATLAS Express Stream Coordinator
2021 - 2022	Member of the ATLAS Early Career Scientist Board
2020 - 2022	Convenor of the ATLAS SM PDF Fit Forum
2015 - present	Developer of the <code>xFitter</code> Fitting Framework and member of the <code>xFitter</code> Collaboration
2013 - present	Member of the ATLAS Collaboration

Summary of ongoing researches

I currently work on the ATLAS experiment, and I am involved in four distinct analyses, both of which have the goal of precisely measuring Standard Model (SM) quantities.

- **W + c cross section measurement:**
I am leading a precision measurement of events with W boson produced in association with a c -quark, focusing on the muon decay final state. I am also the **analysis contact** and **contact editor** for this analysis.
- **Z boson mass measurement:**
I am generating theoretical predictions with several MC generators and computing higher order QED and EW corrections to the Z boson line shape. I am also involved in muon calibration studies, retrieving an additional sagitta bias correction using the “pseudo-mass” asymmetry method.
- **W boson mass measurement:**
I am working on improving the p_T^Z and p_T^W modelling using state-of-the-art N³LO+aN⁴LL calculations. I am also performing fits to several ATLAS and non-ATLAS p_T^Z and p_T^W measurements at different \sqrt{s} to better constrain the non-perturbative effects at very small transverse momenta ($p_T < 5$ GeV) introduced in the calculations.
- **QCD analysis of ATLAS inclusive, di- and tri-jets data at different \sqrt{s} :**
I am carefully identifying the correlation of systematic uncertainties between various data sets and assessing the impact of different jet data sets on PDFs. I am also the responsible for generating NNLO predictions using NNLOJet and APPLfast.

Details of ATLAS work

- **Previous analyses:**
 - **Z p_T measurement at 8 TeV and consequent extraction of α_S**
In this analysis, I generated resummed aN⁴LL+N³LO predictions for the p_T^Z distributions with several generators and I performed all the PDF profiling studies. Furthermore, I computed the NLO EW and higher order QED corrections.
 - **Early Run-3 $t\bar{t}$ and W/Z cross-sections:**
I am generating theoretical predictions with several MC generators and computing higher order corrections. I am also assessing the impact of these data on PDF uncertainty, with a particular emphasis on the $t\bar{t}/Z$ and W/Z ratio data.

- **Inclusive $t\bar{t}$ cross section at $\sqrt{s} = 5.02$ TeV in the $\ell + \text{jets}$ channel:**
In this analysis, I conducted all the studies to show the impact of these data on PDFs. In particular, I included these data in the ATLASpdf21 global fit, showing that this measurement prefers a harder gluon at Bjorken $x \sim 0.3$.
 - **ATLAS global PDF fit:**
I was the **principal contributor** to the first ATLAS PDF fit which includes 13 TeV data and assesses the impact of systematic uncertainties correlation between various data sets, providing fundamental information to global PDF fitters to include our data in their fits properly. In addition to coordinating the analysis effort and being **analysis contact** and **contact editor**, I advised two Ph.D. students (one from University of Oxford and one from DESY) whose theses comprise this measurement.
 - **Z + HF cross section measurement:**
My efforts have been focused on the creation and validation of Monte Carlo (MC) next-to-leading-order (NLO) predictions from aMC@NLO with FxFx merging.
 - **Measurement of the effective leptonic weak mixing angle using electron and muon pairs from Z-boson decay in the ATLAS experiment at $\sqrt{s} = 8$ TeV:**
Since the uncertainties due to PDF are the largest source for this measurement, I **generated theoretical predictions** for the ATLAS W^\pm charge asymmetry measurement at $\sqrt{s} = 8$ TeV. Then, I **investigated the potential impact** of this data in a PDF fit, given that further constraints on PDFs might lead to substantial improvement in the measurement.
 - **Top quark mass measurement using the soft muon tagging technique in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector:**
I contributed to **development of the Soft Muon Tagging (SMT)** technique to identify the hadronic jet with a spatially associated muon; furthermore, I helped with the creation and validation of higher-order NNLO QCD and NLO EW predictions for the unfolded distributions and I studied the possible impact of these data on PDFs. Moreover, I performed MC-based studies on fragmentation and HF modelling.
- **Convener of the ATLAS W/Z Physics Group (Feb 2023 - present)**
I am currently the convener of the ATLAS W/Z Physics Group, managing a team of around 270 physicists. During my tenure as convener, 7 papers and 8 CONF notes were published.
 - **Phase-II TDAQ work (Apr 2022 - present)**
I investigated the timing performance of commercially available accelerator cards in the context of the high level trigger at the ATLAS experiment. I studied the performance obtained running three machine learning models (a Deep Neural Network for hit position reconstruction and a Convolved Neural Network and a Recurrent Neural Network for pattern recognition) on a commercially available Xilinx Alveo U50 and U250 cards. I compared the inference time obtained between CPU (interfaced to the ONNX library), GPU and the above-mentioned cards. Furthermore, I studied the performances of the CNN and DNN on a VCK5000 Versal Development Card. Moreover, I tested the possibility of running the Athena framework on a GPU. Furthermore, I am also implementing the RNN in L2muon to test it with Run 3 NSW data.
 - **ATLAS Express Stream coordinator (Aug 2022 - Nov 2023)**
I am responsible for defining the express stream menu which provides the data used in the initial Data Quality assessment. This position reports to the DataPrep coordinators and is expected to work in close collaboration with the Data Quality group. The Express Stream Coordinator is also a member of the Trigger Menu Coordination Group which ensures good communication with the Trigger group. I am also monitoring of the actual express stream bandwidth to ensure that the bandwidth targets are being met.
 - **Qualified as trigger menu and online trigger on-call expert (Apr 2022 - present)**
 - **Convener of the ATLAS SM PDF Fit Forum (Oct 2020 - Sep 2022)**
I was the convener of the ATLAS SM PDF Fit Forum, managing a team of around 30 physicists. This has involved close collaboration with both the physics analyses within the SM group and theorists from several collaborations. During my tenure as convener, I have participated in all the group activities and supervised students working on various PDF analyses.
 - **BIS78 work (Jan 2019 - November 2021)**
I contributed to the development and installation for the Phase 1 upgrade of high performance Resistive Plate Chambers triplets specifically designed for the barrel-to-forward transition region of

the ATLAS detector (**BIS78 project**). In particular, I took part to the optimisation of the trigger algorithm to take full advantage of the new chamber's layout and trigger logic.

- **Physics Modelling work (Jan 2015 - present)**

Right from the beginning of my qualification task, I was responsible of the successful technical implementation in Athena and of physics validation of the **FxFx merging**, a novel prescription which allows for the consistent merging of various jet multiplicities at NLO accuracy. The studies and the results I performed have been documented into 5 PUB notes and paved the way for the active usage of FxFx merging for a large variety of ATLAS MC samples. Since then, I have remained involved in various activities of the group:

- I drove the preparation of MC samples for the simulation of vector boson and top-pair production processes in association with multiple jets using FxFx merging and I was appointed as technical advisor of a Ph.D. student working on the improvement of the FxFx configuration for $W/Z + 3$ jets production to provide an alternative MC sample with a similar accuracy to the nominal Sherpa.
- I also supervised a Ph.D. student working studying an improved FxFx configuration for $t\bar{t} + 2$ jets MC samples and I am currently working on the possibility of slicing and biasing the above described samples.

- **Qualified as ATLAS Control Room shift leader (Feb 2016 - present)**

- **Qualified as ATLAS Control Room Run Control and Trigger desk shifter (Dic 2015 - present)**

Details of phenomenology work

I am genuinely interested in various aspects of **QCD phenomenology** and since the beginning of my Ph.D., I got involved in several PDF sensitivities studies and fits. For example, I contributed to the **WG1 HL/HE-LHC Yellow Report** Chapter studying the proton parton densities at the HL-LHC and the HE-LHC and to the updated **LHeC and FCC-eh Conceptual Design Report** with a study on the α_S extraction. I am also actively contributing to the **LHC ElectroWeak Working Group** (WG). My areas of interests are:

- Assessing the **correlation** among different PDF sets using toy MCs
- Main contributor to ATLAS **FxFx merging** studies for the “Boson+Jets Yellow Report”

Moreover, I was involved in the **PDF4LHC21** benchmarking exercise. Furthermore, I am one of the most active **developers of the xFitter** framework and I am a **member** of the “HEP Software Foundation Collaboration” and “HSF Physics Event Generator WG”.

Ph.D. research

I worked on measuring the **low mass Drell-Yan double differential cross sections** in ATLAS (first Run-2 analysis measuring Drell-Yan cross section down to $m_{\ell\ell} \sim 7$ GeV). I was the main analyser and my principal contributions were as follows:

- **Analysis contact** for this Run-2 measurement:
 - **Contact editor** of the paper.
 - **Organise** weekly analysis meeting.
 - Ensure compliance with the latest recommendations from detector and physics performance groups.
- **Theoretical predictions** with several MC generators (DYTurbo, CuTe+MCFM and FEWZ in particular).
- Estimate of the **QCD background**, through the **creation of an improved template fit method** to minimise the reliance on MC predictions.
- Estimate of an additional smearing correction for the d_0 and z_0 distributions of low- p_T muons.
- Determine systematic uncertainties and scale factors due to mismodeling in MC simulation.

- I performed **data – MC comparisons** for systematic uncertainties.
- **Creation and maintenance of analysis software** using the RootCore framework.
- In addition to coordinating the analysis effort, I advised one Ph.D. student from DESY whose thesis will comprise this analysis.

I also contributed to the search for high-mass new phenomena in the dilepton final state and I focused my work on searches for Z' resonances in various beyond the Standard Model models. In particular, I was one of the **leading analysers** in the electron decay channel and:

- I worked on the **evaluation of mass-dependent NNLO QCD and NLO EW corrections** to the Z'/W' signals.
- I assessed PDF systematic uncertainties.
- I **developed a tool** for applying the above-mentioned mass-dependent k_F .
- I evaluated the limits on Z' cross section and mass.

Teaching

Aug 2023	Discussion leader of the “2023 CERN-Fermilab Hadron Collider Physics Summer School” (CERN)
Jul 2023	Invited speaker for topical discussions (PDFs determination, higher-order QCD and EW calculations and ML techniques applied to MC generation) to “PhysTeV 2023”, Les Houches (France)
2017 - 2018	Teaching assistant for the C4 Particle Physics Option Classes (University of Oxford)
2014 - 2015	Teaching assistant for the C4 Particle Physics Option Classes (University of Oxford)

Student Supervision

2024 - present	Advising a Ph.D. student (from University of Science and Technology of China) involved in assessing the impact of W and Z cross sections at $\sqrt{s} = 5$ and 13 TeV (low μ) on the determination of the parton distribution functions of the proton
2024 - present	Advising a master student (from University of Oxford) involved in performing N ³ LO PDF fits to HERA and Drell-Yan data
2023 - present	Advising a master student (from University of Oxford) involved in assessing the impact of di-jets data at $\sqrt{s} = 13$ TeV on the determination of the parton distribution functions of the proton and the extraction of the strong coupling constant α_s
2023 - present	Advising a master student (from DESY) involved in the determination of the parameters (g_1 and q) which regulate the non-perturbative form factor in small- q_T resummed predictions from ATLAS low mass Drell-Yan data at 13 TeV
2023 - 2024	Advising a Ph.D. student (from University of Wuppertal) involved in computing higher order theoretical predictions for the measurement of double-differential charged-current Drell-Yan cross section at $\sqrt{s} = 13$ TeV
2023 - 2024	Advising a master student (from University of Cosenza, during an Erasmus traineeship based at CERN) involved in assessing the impact of ATLAS triple-differential $t\bar{t}$ ($\ell + \text{jet}$ and dilepton decay channel) cross section measurements at $\sqrt{s} = 13$ TeV on the determination of the parton distribution functions of the proton
2023 - present	Advising a master student (from University of Prague) involved in assessing the impact of di-jets data at $\sqrt{s} = 13$ TeV on the determination of the parton distribution functions of the proton
Summer 2023	Supervision of a high-school student enrolled in a three-weeks internship program at CERN

Summer 2023	Supervision of a CERN Summer students working on the utilisation of GPUs for the ATLAS trigger software and implementation of machine-learning algorithms for muon reconstruction in the ATLAS High-Level Trigger
2023	Advising a master student (from “Sapienza” University of Rome) involved in ATLAS paper “Measurement of forward-backward asymmetry in $Z \rightarrow \tau\tau$ events”
April 2023	Supervision of a high-school student enrolled in a two-weeks internship program at CERN
2022 - 2023	Advising a Ph.D. student (from University of Bologna) involved in computing higher order theoretical predictions for the early Run 3 ATLAS W, Z cross section measurements at $\sqrt{s} = 13.6$ TeV
2022 - 2023	Advising a Ph.D. student (from University of Udine) involved in assessing the impact of single-top-quark data at $\sqrt{s} = 5.02$ TeV on the determination of the parton distribution functions of the proton
2022 - 2023	Advising a Ph.D. student (from University of Birmingham) involved in assessing the impact of the early Run 3 ATLAS W, Z cross section measurements at $\sqrt{s} = 13.6$ TeV on the determination of the parton distribution functions of the proton
2022 - 2023	Advising a Ph.D. student (from University of Toronto) involved in assessing the impact of the early Run 3 ATLAS $t\bar{t}$ cross section measurements at $\sqrt{s} = 13.6$ TeV on the determination of the parton distribution functions of the proton
2021 - 2022	Co-supervisor of a master student (from University of Calabria) involved in assessing the impact of the full Run 2 ATLAS $t\bar{t}$ ($\ell + \text{jet}$ decay channel) cross section measurements at $\sqrt{s} = 13$ TeV on the determination of the parton distribution functions of the proton
2021 - 2023	Advising a Ph.D. student (from University of Dortmund) involved in the charm mis-tag rate calibration based on $W + c$ events
2020 - 2021	Advising two Ph.D. students (one from University of Oxford and one from DESY) involved in the ATLAS paper “Determination of the parton distribution functions of the proton from diverse ATLAS data sets”
2020 - 2023	Advising a Ph.D. student (from University of Paris-Saclay) involved in the ATLAS QCD+EW fit
2020 - 2024	Advising a Ph.D. student (from University of Pavia) involved in the ATLAS $W + c$ cross section measurement
2019 - 2021	Advising a Ph.D. student (from Shandong University) involved in the ATLAS NNLO top-quark pole mass extraction
2019 - 2021	Technical advisor of a Ph.D. student (from JINR Dubna) during his Qualification Task on the validation and production of $t\bar{t} + \text{jets}$ FxFx samples with two additional partons in the final state
2019 - 2021	Technical advisor of a Ph.D. student (from Pontificia Universidad Catolica de Chile) during his Qualification Task on the validation and production of $W/Z + \text{jets}$ FxFx samples with three additional partons in the final state
2019 - 2020	Advising a master student (from University of Calabria) involved in assessing the impact of the ATLAS $t\bar{t}$ cross section measurements at $\sqrt{s} = 13$ TeV on the determination of the parton distribution functions of the proton
2019 - 2023	Advising a Ph.D. student (from DESY-University of Genoa) involved in the ATLAS paper “Low mass Drell-Yan differential cross section measurement at $\sqrt{s} = 13$ TeV using the ATLAS detector at the LHC”
2017 - 2018	Advising a master student (from “Sapienza” University of Rome) involved in the ATLAS paper “Low mass Drell-Yan differential cross section measurement at $\sqrt{s} = 13$ TeV using the ATLAS detector at the LHC”
Summer 2015	Advising a student involved in a summer project with Juan Rojo’s research group at the University of Oxford. Topic of the project: Constraints on the photon PDF in W^+W^- production in pp collision at $\sqrt{s} = 13$ TeV

Scholarships & Awards

2024	ATLAS Outstanding Achievement Award for my contribution to Trigger operations
2022 - present	Associate member of the “European Centre for Theoretical Studies in Nuclear Physics and Related Areas - ECT*”, Trento (Italy)
2022	DESY Research Fellowship (awarded but offer declined because I accepted the Senior Research Fellowship at CERN)
2022	“Sapienza BE-FOR-ERC” scholarship, Sapienza University of Rome, Rome (Italy) - € 50000 (awarded but offer declined because I accepted the Senior Research Fellowship at CERN) Topic: The study of heavy-quark Fragmentation Functions at the LHC and beyond
2021 - present	Visiting Scientist at “University of Rome Tor Vergata”, Rome (Italy)
2019	CERN-INFN Associate Fellowship - CERN associate member from Jan 2020 to Dec 2020 - € 60000 Topic: $W + c$ cross section measurement with full Run-2 statistics and the possible impact of these data in modern PDF fits
2019 - 2024	Visiting Scientist at “University of Oxford”, Oxford (UK)
2018	Scholarship for deserving students provided by St John’s College, Oxford (UK) - £ 2000
2017 - 2018	Visiting Student at “Queen Mary University of London”, London (UK)
2015 - 2016	Long Term Affiliation (LTA) at CERN with the ATLAS Oxford Group
2015	Scholarship for deserving students provided by St John’s College, Oxford (UK) - £ 2000
2014	Excellence program for deserving students, University of Rome “La Sapienza”, Rome (Italy) Topic: Study and application of advanced algorithms of multivariate analysis (using TMVA) for the research of additional Higgs bosons at LHC Supervisor: Prof. S. Giagu
Summer 2013	Scholarship with UNIGE ATLAS group: Summer Student Program at CERN - € 6000 Topic: $WW\gamma\gamma$ production and Anomalous Quartic Gauge Couplings Supervisor: Prof. G. Iacobucci

Schools

2023	ATLAS GPU Training (CERN)
2023	9 th HEP C++ Course and Hands-On Training - Advanced C++ (CERN)
2023	Advanced programming in Python (CERN)
2023	INFN school “Calcolo parallelo e GPU” (online)
2023	Inner Detector Tracking workshop, Chateau de Bossey (Switzerland)
2022	NVIDIA Introduction to CUDA programming in C++ and GPU computing in Python (online)
2021	School on Machine Learning in High Energy Physics (online)
2018	Machine Learning for Particle Physics (CERN)
2016	CTEQ/MCnet Summer School on QCD, DESY (Hamburg)
2015	“2015 CERN European School of High-Energy Physics”, Bansko (Bulgaria)
2015	ATLAS Advanced Software Development Tutorial (CERN)
2015	“Physics at the Terascale - Monte Carlo School”, DESY (Hamburg)

Talks at International Conferences and Workshops

(plenary talks are reported in **bold**)

- ATLAS talks:

Oct 2024	ATLAS+CMS+LHCb talk “ QCD aspects in W and Z production, with focus on high-p_T W/Z ” at QCD@LHC 2024 (Freiburg)
Oct 2024	ATLAS+CMS+LHCb talk “ Soft QCD measurements and diffractive processes ” at QCD@LHC 2024 (Freiburg)
Jul 2024	“Studies on track finding algorithms based on machine learning with CPU, GPU and FPGA” at ICHEP2024 (Prague)
Nov 2023	“ Recent ATLAS top measurements and their impact on PDFs ” at CTEQ workshop (Michigan State University)
Oct 2023	“The ATLAS Trigger system: the current and future HLT” at 2023 International Workshop on the High Energy Circular Electron-Positron Collider (Nanjing)
Sep 2023	“ PDF Constraints from new Data and from Future Experiments ” at QCD@LHC2023 (Durham)
Jul 2023	ATLAS+CMS talk “ α_S measurements from p_T^Z and $2 \rightarrow 3$ jets predictions and inclusive jets using NNLO QCD theory input ” at SM@LHC2023 (Fermilab)
Mar 2023	“Measurements of W and Z boson production in association with heavy flavour at ATLAS” at 30 th International Workshop on Deep Inelastic Scattering and Related Topics (Michigan State University)
Nov 2022	ATLAS+CMS talk “Precision measurements of photon production at the LHC” at QCD@LHC2022 (Orsay)
Sep 2022	ATLAS+CMS+LHCb talk “ W mass measurement from LHC ” at PIC 2022 (Tbilisi)
May 2022	“Determination of proton parton distribution functions using ATLAS data” at 29 th International Workshop on Deep Inelastic Scattering and Related Topics (Santiago de Compostela)
Feb 2022	“ The ATLASpdf21 fit ” at alphaS-2022 workshop (Trento)
Sep 2021	“ Precision measurements of jet production at the ATLAS experiment ” at Low- x 2021 (Isola d’Elba)
Oct 2020	“ Impact of ATLAS V+jets data on PDF fits ” at QCD20 (Montpellier)
Feb 2020	“ ATLAS results using xFitter and ATLAS xFitter users’ wishes ” at the xFitter External Workshop (DESY, Hamburg)
Jul 2019	“Determination of proton parton distribution functions using ATLAS data” at EPS Conference of High Energy Physics (Ghent)
Jul 2018	“ Constraints on the Parton Density Functions of the Proton by Measurements with the ATLAS Detector ” at QCD18 (Montpellier)
Mar 2018	“ Overview of the ATLAS results achieved using xFitter - ATLAS report and wishes ” at the xFitter External Workshop (Krakow)
Sep 2016	“Constraints on PDFs from ATLAS” at PrecisonVietnam 2016 (Quy Nhon)

- Theory/Pheno talks:

Sep 2024	“ Towards a simultaneous determination of PDFs and α_s at N³LO ” at New Trends in High-Energy Physics and Low- x physics (Bucharest)
Jul 2024	“ The importance of $V + \text{HF}$ data in modern PDF fits ” at Flavoured Jets at the LHC (Durham)
Apr 2024	“ WG1 Summary Talk ” at 31 st International Workshop on Deep Inelastic Scattering and Related Topics (Grenoble)

Feb 2024	“ α_s determination from a PDF fit with small- x resummation” at alphaS-2024 workshop (Trento)
Aug 2023	“ Z' -boson dilepton searches and the high- x quark density” at EPS Conference of High Energy Physics (Hamburg)
Mar 2023	“Future (possible) studies using the xFitter fitting framework” at 30 th International Workshop on Deep Inelastic Scattering and Related Topics (Michigan State University)
May 2022	“Recent results from the xFitter project” at 29 th International Workshop on Deep Inelastic Scattering and Related Topics (Santiago de Compostela)
Mar 2022	“ Precision measurements of the Lepton-Charge and Forward-Backward Drell-Yan Asymmetries to Enhance the Sensitivity to Broad Resonances of New Gauge Sectors ” at Recontres de Moriond QCD and High Energy Physics (La Thuile)
Mar 2022	“ Towards global PDF fits using ATLAS data ” at the xFitter External Workshop (IJCLab, Orsay, France)
Jul 2021	“Complementarity of Lepton-Charge and Forward-Backward Drell-Yan Asymmetries for Precision Electroweak Measurements and Quark Density Determinations” at EPS Conference of High Energy Physics (Hamburg)
Mar 2021	“ Longitudinally polarized Z-bosons and the Higgs cross section at the LHC ” at Recontres de Moriond QCD and High Energy Physics (La Thuile)
Feb 2020	“ Fitting A_0 data and their effect on PDFs - a profiling exercise ” at the xFitter External Workshop (DESY, Hamburg)
Nov 2019	“ xFitter: an open-source tool for QCD analyses ” at the Workshop “Ultimate precision at hadron colliders” (Paris-Saclay)
Jul 2019	“PDF Profiling Using the Forward-Backward Asymmetry in Neutral Current Drell-Yan” at EPS Conference of High Energy Physics (Ghent)
Apr 2019	“Improved description of the HERA data using a new simple PDF parametrization” at 27 th International Workshop on Deep Inelastic Scattering and Related Topics (Turin)
Apr 2019	“ Introduction to PDF correlation benchmarking discussion: overview of the xFitter framework ” at LHC EW Precision sub-group Workshop (IPPP Durham)
Mar 2019	“ A new simple PDF parametrization for PDF fits to HERA data within xFitter ” at the xFitter External Workshop (Minks)
Mar 2018	“ Recent QCD results from the xFitter project ” at Recontres de Moriond QCD and High Energy Physics (La Thuile)
Mar 2018	“ Impact of low-x resummation on QCD analysis of HERA data ” at the xFitter External Workshop (Krakow)
Jul 2017	“The photon PDF with xFitter” at EPS Conference of High Energy Physics (Venice)
Apr 2017	“The photon PDF from high-mass Drell Yan data at the LHC” at 25 th International Workshop on Deep Inelastic Scattering and Related Topics (Birmingham)
Mar 2017	“ The photon PDF from high-mass Drell Yan data at the LHC ” at the xFitter External Workshop (Oxford)

- Future experiments talks:

Oct 2023	EIC talk “ Impact of Inclusive Electron Ion Collider Data on Collinear Parton Distributions ” at Forward Physics and QCD at the LHC and EIC (Bad Honnef)
Aug 2023	LHeC/FCC-eh talk “Precision/high energy QCD and diffraction at the LHeC and FCC-eh” at EPS Conference of High Energy Physics (Hamburg)

Mar 2023	LHeC/FCC-eh talk “Proton structure and precision QCD at the LHeC and FCC-he” at 30 th International Workshop on Deep Inelastic Scattering and Related Topics (Michigan State University)
Jan 2023	LHeC/FCC-eh talk “ Parton Distributions from LHeC/FCC-eh ” at 29 th Epiphany Conference (Krakow)
Aug 2022	FCC talk “ High-precision QCD physics at FCC-ee ” at LFC22 (Trento)
Jul 2022	FCC talk “High-precision QCD physics at FCC-ee” at ICHEP2022 (Bologna)
May 2022	EIC talk “Proton and Nuclear Collinear Parton Densities at the Electron Ion Collider using simulated ATHENA Data” at 29 th International Workshop on Deep Inelastic Scattering and Related Topics (Santiago de Compostela)

Seminars

Jul 2024	“Precision measurement of the Z -boson transverse momentum and consequent extraction of the strong coupling constant”, Topical afternoon on Parton Distribution Functions, University of Rome “La Sapienza”
May 2024	“Precision physics at future colliders: the FCC-eh and LHeC cases”, University of Zurich
Feb 2024	“High-precision measurements of the Z -boson transverse momentum and α_S with ATLAS”, IPPP Durham
Jan 2024	“The most precise α_S determination from hadron colliders”, Jagiellonian University, Krakow
Dec 2023	“Why are we still talking about PDFs?”, Collider Cross Talk, CERN
May 2022	“Measurement of the W boson mass at the ATLAS experiment”, Special INFN Seminar, University of Rome “La Sapienza”
Aug 2021	“The ATLAS global PDF fit”, Experimental Physics Seminar, University of Brandeis
Feb 2020	“Impact of angular coefficients data in Neutral DY events on PDFs at HL- and HE-LHC”, 3 rd Rome physics encounters@LNF, National Laboratories of Frascati
May 2019	“Impact of small- x resummation on data collected at the HERA collider”, Theoretical Physics Seminar, University of Genoa
Mar 2019	“Impact of small- x resummation on HERA data: new QCD results”, Particle Phenomenology Forum, University of Rome “La Sapienza”
Jul 2018	“Recent QCD results on HERA data including small- x resummation”, Joint Theoretical Physics Seminar, University of Milan “Statale” and University of Milan “Bicocca”
Apr 2018	“The importance of $\ln(1/x)$ resummation: a new QCD analysis of HERA data”, Theoretical Physics Seminar, University of Rome “La Sapienza”

Talks at National Conferences and ATLAS Workshops

Feb 2024	“Future Combinations in the SM, Top, Higgs and HDBS groups” at ATLAS week (CERN)
Jan 2024	“The impact of ATLAS $t\bar{t}$ on PDFs” at ATLAS Italy Top Meeting (Bologna)
Sep 2023	“Future of Monte Carlo Modelling, Analysis Model & Data Format” at XVI Workshop ATLAS Italia (Rimini)
Sep 2023	“QED and EW corrections for precision determination of m_W and m_Z ” at ATLAS Standard Model Workshop (Prague)
Sep 2022	“What do we need for PDF fits?” at ATLAS Standard Model Workshop (DESY)
Dic 2021	“Inclusive W, Z cross sections with early Run 3 data” at the ATLAS physics Workshop “ATLAS Physics from run 2 to run 3 and beyond” (CERN)

Sep 2021	Invited ATLAS/CMS talk “Recent QCD highlights from the ATLAS and CMS experiments at the LHC” at 107° Congresso Nazionale della Società Italiana di Fisica
Dic 2019	“Impact of $t\bar{t}$ + jets data recorded at $\sqrt{s} = 13$ TeV on PDFs” at the ATLAS physics Workshop “Run 2 Physics: Reaching new heights” (CERN)
Sep 2019	“Towards the ATLAS global PDF fit” at ATLAS Standard Model Workshop (Belgrade)
May 2019	“Overview of ATLAS SM Results” at XIV Workshop ATLAS Italia (Genoa)
Mar 2017	“A novel determination of the photon PDF from ATLAS high-mass Drell Yan data recorded at 8 TeV” at the ATLAS UK SM meeting (Warwick)
Jan 2017	“UK’s involvement in single-boson W/Z physics” at ATLAS UK Annual meeting (Liverpool)

Posters

Jul 2024	“ATLAS Trigger menu” at ICHEP (Prague)
Nov 2023	“Fast inference on FPGA for the ATLAS Muon Trigger” at the 156 th LHCC meeting (CERN)
Oct 2023	“Impact of Inclusive Electron Ion Collider Data on Collinear Parton Distributions” at Forward Physics and QCD at the LHC and EIC (Bad Honnef)
Oct 2019	“Impact of LHeC data on PDFs and improved PDF parametrisation” at the Workshop on the LHeC, FCC-eh and PERLE (Chavannes de Bogis)
Jul 2017	“Determination of proton parton densities and α_S at the LHeC and the FCC-eh” at EPS Conference of High Energy Physics (Venice)
Jul 2017	“Performances of the MC generators for the production of boson and multi-boson states at $\sqrt{s} = 13$ TeV in ATLAS” at EPS Conference of High Energy Physics (Venice)
Feb 2017	“Search for new high-mass resonances in the dilepton final state using proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector” at the 129 th LHCC meeting (CERN)
Mar 2016	“Monte Carlo modelling of W and Z/γ^* production in association with jets” at the 125 th LHCC meeting (CERN)

Publications

- Full list of publications from INSPIRE-HEP: <http://inspirehep.net/author/profile/F.Giuli.1>
- Publications within the ATLAS Collaboration with significant contributions:
 - **PLB 854 (2024) 138725, arXiv:2403.12902**, *Measurement of vector boson production cross sections and their ratios using pp collisions at $\sqrt{s} = 13.6$ TeV with the ATLAS detector*
 - **arXiv:2401.06630, submitted to JINST**, *The ATLAS Trigger System for LHC Run 3 and Trigger performance in 2022*
 - **arXiv:2309.12986, submitted to Nature**, *A precise determination of the strong-coupling constant from the recoil of Z bosons with the ATLAS experiment at $\sqrt{s} = 8$ TeV*
 - **EPJC 84 (2024) 315, arXiv:2309.09318**, *A precise measurement of the Z-boson double-differential transverse momentum and rapidity distributions in the full phase space of the decay leptons with the ATLAS experiment at $\sqrt{s} = 8$ TeV*
 - **PLB 848 (2024) 138376, arXiv:2308.09529**, *Measurement of the $t\bar{t}$ cross section and its ratio to the Z production cross section using pp collisions at $\sqrt{s} = 13.6$ TeV with the ATLAS detector*
 - **JHEP 06 (2023) 019, arXiv:2209.00583**, *Measurement of the top-quark mass using a leptonic invariant mass in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*
 - **JHEP 06 (2023) 138, arXiv:2207.01354**, *Measurement of top-quark pair production cross-section in 5 TeV pp collisions with the ATLAS detector*

- **Eur. Phys. J. C** **82** (2022) 5 438, [arXiv:2112.11266](#), *Determination of the parton distribution functions of the proton using diverse ATLAS data from pp collisions at $\sqrt{s} = 7, 8$ and 13 TeV*
- **JHEP** **08** (2022) 089, [arXiv:2112.09588](#), *Modelling and computational improvements to the simulation of single vector-boson plus jet processes for the ATLAS experiment*
- **JHEP** **07** (2021) 223, [arXiv:2101.05095](#), *Determination of the parton distribution functions of the proton from ATLAS measurements of differential W^\pm and Z boson production in association with jets*
- **JHEP** **07** (2020) 044, [arXiv:2003.11960](#), *Measurements of the production cross-section for a Z boson in association with b-jets in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*
- **JHEP** **10** (2017) 182, [arXiv:1707.02424](#), *Search for new high-mass phenomena in the dilepton final state using 36 fb^{-1} of proton-proton collision data at $\sqrt{s} = 13$ TeV with the ATLAS detector*
- **PLB** **761** (2016) 372-392, [arXiv:1607.03669](#) *Search for high-mass new phenomena in the dilepton final state using proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*
- **PLB** **744** (2015) 163-183, [arXiv:1502.04478](#) *Search for a CP-odd Higgs boson decaying to Zh in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector*
- Publications within the ATLAS Collaboration being member of the Editorial Board:
 - **PRD** **108** (2023) 032012, [arXiv:2302.00336](#), *Measurement of the production of a W boson in association with a charmed hadron in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*
- Publications within the ATLAS Collaboration being sub-group convenor:
 - [arXiv:2405.20041](#), **submitted to EPJC**, *A simultaneous unbinned differential cross section measurement of twenty-four Z+jets kinematic observables with the ATLAS detector*
 - [arXiv:2404.06204](#), **submitted to EPJC**, *Precise measurements of W- and Z-boson transverse momentum spectra with the ATLAS detector using pp collisions at $\sqrt{s} = 5.02$ TeV and 13 TeV*
 - [arXiv:2403.15093](#), **submitted to JHEP**, *Measurements of the production cross-section for a Z boson in association with b- or c-jets in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*
 - [arXiv:2403.15085](#), **submitted to JHEP**, *Measurement of the W-boson mass and width with the ATLAS detector using proton-proton collisions at $\sqrt{s} = 7$ TeV*
 - **PLB** **854** (2024) 138705, [arXiv:2312.02789](#), *Measurement of the Z boson invisible width at $\sqrt{s} = 13$ TeV with the ATLAS detector*
 - **EPJC** **84** (2024) 195, [arXiv:2310.11574](#), *Study of $Z \rightarrow \ell\ell\gamma$ decays at $\sqrt{s} = 8$ TeV with the ATLAS detector*
 - [arXiv:2309.15887](#), **submitted to PLB**, *Search for the exclusive W boson hadronic decays $W^\pm \rightarrow \pi^\pm\gamma$, $W^\pm \rightarrow K^\pm\gamma$ and $W^\pm \rightarrow \rho^\pm\gamma$ with the ATLAS detector*
 - **JHEP** **06** (2023) 080, [arXiv:2205.02597](#), *Cross-section measurements for the production of a Z boson in association with high-transverse-momentum jets in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*
- Publications outside the ATLAS Collaboration:
 - [arXiv:2312.14363](#), *CEPC Technical Design Report – Accelerator*, The CEPC Study Group
 - **EPJC** **84** (2024) 541, [arXiv:2311.08785](#), *Analysis of HERA data with a parametrization inspired to quantum statistical mechanics*, M. Bonvini, ..., F. Giuli et al.
 - [arXiv:2310.19638](#), **submitted to JHEP**, *Exploring SMEFT Couplings Using the Forward-Backward Asymmetry in Neutral Current Drell-Yan Production at the LHC*, A. Anatachuk, S.-O. Moch and the xFitter Developers’ team: Hamed Abdolmaleki, ..., F. Giuli et al.
 - **PRD** **109** (2024) 054019, [arXiv:2309.11269](#), *Impact of Inclusive Electron Ion Collider Data on Collinear Parton Distributions*, N. Armesto, ..., F. Giuli et al.
 - **PRD** **108** (2023) 034029, [arXiv:2306.03918](#), *Quantifying the interplay of experimental constraints in analyses of parton distributions*, X. Jing, ..., F. Giuli et al.

- **PLB 841 (2023) 137915**, [arXiv:2211.06188](#), *Z'-boson dilepton searches and the high-x quark density*, J. Fiaschi, F. Giuli et al.
- **arXiv:2206.12465**, *xFitter: An Open Source QCD Analysis Framework. A resource and reference document for the Snowmass study*, xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
- **arXiv:2203.13923**, **contribution to 2022 Snowmass Summer Study**, *Snowmass 2021 whitepaper: Proton structure at the precision frontier*, S. Amoroso, ..., F. Giuli et al.
- **arXiv:2203.11110**, **contribution to 2022 Snowmass Summer Study**, *Event Generators for High-Energy Physics Experiments*, J. M. Campbell, ..., F. Giuli et al.
- **arXiv:2203.08271**, **contribution to 2022 Snowmass Summer Study**, *The strong coupling constant: State of the art and the decade ahead*, D. d'Enterria, ..., F. Giuli et al.
- **J. Phys. G 49 (2022) 080501**, [arXiv:2203.05506](#), *The PDF4LHC21 combination of global PDF fits for the LHC Run III*, R. D. Ball, ..., F. Giuli et al.
- **J. Phys. G 50 (2023) 030501**, [arXiv:2203.05090](#), *The Forward Physics Facility at the High-Luminosity LHC*, J. L. Feng, ..., F. Giuli et al.
- **JHEP 02 (2022) 179**, [arXiv:2111.09698](#), *Enhancing the Large Hadron Collider Sensitivity to Charged and Neutral Broad Resonances of New Gauge Sectors*, J. Fiaschi, F. Giuli et al.
- **arXiv:2109.14938**, **contribution to 2022 Snowmass Summer Study**, *HL-LHC Computing Review Stage-2, Common Software Projects: Event Generators*, HSF Physics Event Generator WG: E. Yagzan, ..., F. Giuli et al.
- **Phys. Rept. 968 (2022) 1**, [arXiv:2109.10905](#), *The Forward Physics Facility: Sites, Experiments, and Physics Potential*, L. A. Anchordoqui, ..., F. Giuli et al.
- **PRD 104 (2021) 056019**, [arXiv:2105.11306](#), *QCD analysis of pion fragmentation functions in the xFitter framework*, xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
- **Nuclear Physics B 968 (2021) 115444**, [arXiv:2103.10224](#), *Lepton-Charge and Forward-Backward Asymmetries in Drell-Yan Processes for Precision Electroweak Measurements and New Physics Searches*, J. Fiaschi, F. Giuli et al.
- **PLB 821 (2021) 136613**, [arXiv:2012.10298](#), *Longitudinal Z-Boson Polarization and the Higgs Boson Production Cross Section at the Large Hadron Collider*, S. Amoroso, ..., F. Giuli et al.
- **arXiv:2009.03838**, **contribution to 2022 Snowmass Summer Study**, *New opportunities at the photon energy frontier*, J. Adams, ..., F. Giuli et al.
- **arXiv:2008.13636**, **contribution to 2022 Snowmass Summer Study (report number: HSF-DOC-2020-01)**, *HL-LHC Computing Review: Common Tools and Community Software*, HEP Software Foundation: T. Aarrestad, ..., F. Giuli et al.
- **J. Phys. G 48 (2021) 11**, **110501**, [arXiv:2007.14491](#), *The Large Hadron-Electron Collider at the HL-LHC*, P. Agostini, ..., F. Giuli et al.
- **Comput Softw Big Sci 5 (2021) 12**, [arXiv:2004.13687](#), *Challenges in Monte Carlo event generator software for High-Luminosity LHC*, HSF Physics Event Generator WG: A. Valassi, ..., F. Giuli et al.
- **PRD 102 (2020) 014040**, [arXiv:2002.02902](#), *Parton distribution functions of the charged pion within the xFitter framework*, xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
- **JHEP 10 (2019) 176**, [arXiv:1907.07727](#), *PDF Profiling Using the Forward-Backward Asymmetry in Neutral Current Drell-Yan Production*, E. Accomando, J. Fiaschi, F. Hautmann, S. Moretti, and the xFitter Developers' team: Hamed Abdolmaleki, ..., F. Giuli et al.
- **EPJC 79 (2019) 864**, [arXiv:1907.01014](#), *Probing the strange content of the proton with charm production in charged current at LHeC*, xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
- **EPJ Plus 134 (2019) 531**, [arXiv:1902.11125](#), *A new simple PDF parametrization: improved description of the HERA data*, M. Bonvini and F. Giuli
- **CERN Yellow Rep. Monogr. 7 (2019) 1-220**, [arXiv:1902.04070](#), *Standard Model Physics at the HL-LHC and HE-LHC*, Report from Working Group 1 on the Physics of the HL-LHC, and Perspectives at the HE-LHC: P. Azzi, ..., F. Giuli et al.

- **EPJC 78 (2018) 621**, [arXiv:1802.00064](#), *Impact of low- x resummation on QCD analysis of HERA data*, xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
- **EPJC 77 (2017) 837**, [arXiv:1707.05343](#), *Impact of the heavy quark matching scales in PDF fits*, xFitter Developers' Team: V. Bertone, ..., F. Giuli et al.
- **EPJC 77 (2017) 400**, [arXiv:1701.08553](#), *The photon PDF from high-mass Drell–Yan data at the LHC*, F. Giuli et al.

Conference proceedings

- [arXiv:2310.14233](#), *High- x quark density and their impact on Z' -boson dilepton searches*, Francesco Giuli
Proceedings of the European Physical Society Conference on High Energy Physics (EPS-HEP), 21-25 August 2023, Hamburg, Germany
- [arXiv:2306.11562](#), *Measurements of W boson production in association with heavy flavour at ATLAS*, Francesco Giuli
Proceedings of 30th International Workshop on Deep Inelastic Scattering and Related Topics, 27-31 March 2023, Michigan State University, USA
- [arXiv:2302.05186](#), *PDFs determination from the LHeC*, Francesco Giuli
Proceedings of 29th Epiphany Conference, 16-19 January, 2023, Krakow, Poland
- [arXiv:2211.15214](#), *LHC sensitivity to Z'/W' states in composite Higgs models*, J. Fiaschi, F. Giuli et al.
Proceedings of 41st International Conference on High Energy Physics, 06-13 July, 2022, Bologna, Italy
- [arXiv:2208.09621](#), *High-precision QCD physics at FCC-ee*, Francesco Giuli
Proceedings of 41st International Conference on High Energy physics, 06-13 July, 2022, Bologna, Italy
- [arXiv:2205.13784](#), *The ATLASpdf21 fit: a novel determination of proton Parton Distribution Functions using ATLAS data*, Francesco Giuli
Proceedings of 29th International Workshop on Deep Inelastic Scattering and Related Topics, 02-06 May, 2022, Santiago de Compostela, Spain
- [arXiv:2205.13781](#), *Recent developments and latest results from the xFitter project*, Francesco Giuli
Proceedings of 29th International Workshop on Deep Inelastic Scattering and Related Topics, 02-06 May, 2022, Santiago de Compostela, Spain
- [arXiv:2204.02826](#), *Precision measurements of the Lepton-Charge and Forward-Backward Drell-Yan Asymmetries to Enhance the Sensitivity to Broad Resonances of New Gauge Sectors*, Francesco Giuli
Proceedings of Recontres de Moriond QCD and High Energy Physics, 19-26 March, 2022, La Thuile, Italy
- [arXiv:2110.05081](#), *Precision measurements of jet production at the ATLAS experiment*, Francesco Giuli
Proceedings of the Low- x 2021 Workshop, 27 September - 01 October, 2021, Isola d'Elba, Italy
- [arXiv:2110.03563](#), *Impact of charged and neutral Drell-Yan Asymmetries on precision measurements*, Francesco Giuli
Proceedings of the European Physical Society Conference on High Energy Physics (EPS-HEP), 26-30 July, 2021, Hamburg, Germany
- [arXiv:2107.03099](#), *Complementarity of Lepton-Charge and Forward-Backward Drell-Yan Asymmetries for Precision Electroweak Measurements and Quark Density Determinations*, J. Fiaschi, F. Giuli et al.
Proceedings of 28th International Workshop on Deep-Inelastic Scattering and Related Subjects, 12-16 April, 2021, Stony Brook University, New York, USA
- [arXiv:2104.03191](#), *Impact of A_0 data on the Higgs boson production cross section at the LHC*, Francesco Giuli
Proceedings of Recontres de Moriond QCD and High Energy Physics, 27 March - 03 April, 2021, La Thuile, Italy

- **arXiv:2011.08481**, *Impact of ATLAS $V + jets$ data on PDF fits*, Francesco Giuli
Proceedings of QCD20, 27-31 October, 2020, Montpellier, France
- **arXiv:1909.06702**, *Determination of proton parton distribution functions using ATLAS data*, Francesco Giuli
Proceedings of the European Physical Society Conference on High Energy Physics (EPS-HEP), 10-17 July, 2019, Ghent, Belgium
- **arXiv:1909.00451**, *Recent QCD results from the xFitter project: Probing the strange content of the proton with charm production in charged current at LHeC*, xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
Proceedings of 27th International Workshop on Deep-Inelastic Scattering and Related Subjects, 08-12 April, 2019, Turin, Italy
- **arXiv:1907.08301**, *Forward-Backward Drell-Yan Asymmetry and PDF Determination*, H. Abdolmaleki, ..., F. Giuli et al.
Proceedings of Recontres de Moriond QCD and High Energy Physics, 23-30 March, 2019, La Thuile, Italy
- **arXiv:1906.11793**, *Using Forward-Backward Drell-Yan Asymmetry in PDF Determinations*, J. Fiaschi, E. Accomando, F. Hautmann, S. Moretti and xFitter Developers' team: H. Abdolmaleki, ..., F. Giuli et al.
Proceedings of 27th International Workshop on Deep-Inelastic Scattering and Related Subjects, 08-12 April, 2019, Turin, Italy
- **arXiv:1906.06573**, *Improved description of the HERA data with a new simple PDF parametrization*, Francesco Giuli and Marco Bonvini
Proceedings of 27th International Workshop on Deep-Inelastic Scattering and Related Subjects, 08-12 April, 2019, Turin, Italy
- **arXiv:1811.09449**, *Proton PDFs constraints from measurements using the ATLAS experiment*, Francesco Giuli
Proceedings of QCD18, 02-06 July, 2018, Montpellier, France
- **arXiv:1808.08623**, *xFitter 2.0.0: Heavy quark matching scales: Unifying the FFNS and VFNS*, xFitter Developers' Team: V. Bertone, ..., F. Giuli et al.
Proceedings of the 26th International Workshop on Deep-Inelastic Scattering and Related Subjects, 16-20 April, 2018, Kobe, Japan
- **arXiv:1805.01523**, *The importance of $\ln(1/x)$ resummation: a new QCD analysis of HERA data*, Francesco Giuli
Proceedings of Recontres de Moriond QCD and High Energy Physics, 17-24 March, 2018, La Thuile, Italy
- **arXiv:1709.01151**, *xFitter 2.0.0: An Open Source QCD Fit Framework*, xFitter Developers' Team: V. Bertone, ..., F. Giuli et al.
Proceedings of the XXV International Workshop on Deep-Inelastic Scattering and Related Subjects, 03-08 April, 2017, Birmingham, UK
- **arXiv:1709.00492**, *Performance of Monte Carlo Event Generators for the Production of Boson and Multi-Boson States ATLAS Analysis*, Francesco Giuli
Proceedings of the European Physical Society Conference on High Energy Physics (EPS-HEP), 5-12 July, 2017, Venice, Italy
- **arXiv:1708.03623**, *The photon PDF determination within the xFitter framework*, Francesco Giuli
Proceedings of the European Physical Society Conference on High Energy Physics (EPS-HEP), 5-12 July, 2017, Venice, Italy
- **arXiv:1705.08201**, *The photon PDF from high-mass Drell Yan data at the LHC using xFitter*, Francesco Giuli
Proceedings of the 25th International Workshop on Deep-Inelastic Scattering and Related Subjects, 03-08 April, 2017, Birmingham, UK

ATLAS CONFERENCE and PUBLIC NOTES

- ATLAS CONF and PUB notes with significant contributions:

ATLAS-PUB-2024-002	Studies of matrix element correction in $t\bar{t}$ events using MG5_aMC@NLO+Pythia8
ATL-PHYS-PUB-2023-026	Inclusive W^\pm and Z^0 cross sections at next-to-next-to leading order QCD for the ATLAS experiment
ATLAS-CONF-2023-015	A precise determination of the strong-coupling constant from the recoil of Z bosons with the ATLAS experiment at $\sqrt{s} = 8$ TeV
ATLAS-CONF-2023-013	Measurement of the transverse momentum and rapidity distributions of the Z boson at 8 TeV with the ATLAS detector
ATLAS-CONF-2023-006	Measurement of the $t\bar{t}$ and Z -boson cross-section and their ratio using pp collision data at $\sqrt{s} = 13.6$ TeV with the ATLAS detector (11 fb^{-1})
ATLAS-CONF-2022-070	Measurement of the $t\bar{t}$ cross-section and $t\bar{t}/Z$ cross-section ratio using LHC Run 3 pp collision data at a centre-of-mass energy of $\sqrt{s} = 13.6$ TeV (1.2 fb^{-1})
ATLAS-CONF-2022-031	Measurement of top-quark pair production cross-section in 5 TeV pp collisions with the ATLAS detector
ATLAS-CONF-2020-057	Determination of the parton distribution functions of the proton from ATLAS measurements of differential W^\pm and Z boson production in association with jets
ATL-PHYS-PUB-2019-016	QCD analysis of ATLAS W^\pm boson production data in association with jets
ATLAS-CONF-2018-037	Measurement of the effective leptonic weak mixing angle using electron and muon pairs from Z -boson decay in the ATLAS experiment at $\sqrt{s} = 8$ TeV
ATL-PHYS-PUB-2018-017	Determination of the parton distribution functions of the proton from ATLAS measurements of differential W , Z and $t\bar{t}$ cross-sections
ATLAS-CONF-2017-027	Search for high-mass new phenomena in the dilepton final state using proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector at the LHC
ATL-PHYS-PUB-2017-007	Studies on top-quark Monte Carlo modelling with Sherpa and MG5_aMC@NLO
ATL-PHYS-PUB-2017-006	Improvements to Vector Boson+Jets Simulation for \sqrt{s} 13 TeV ATLAS Analyses
ATLAS-CONF-2016-045	Search for high-mass new phenomena in the dilepton final state using proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector at the LHC
ATL-PHYS-PUB-2016-020	Further comparisons of ATLAS data with NLO simulations of top quark pair production
ATL-PHYS-PUB-2016-016	Additional Studies of MC Generator Predictions for Top Quark Production at the LHC
ATL-PHYS-PUB-2016-003	Studies on the MC generator modelling of boson+jets processes as used in Run2

- ATLAS CONF and PUB notes being sub-group convenor:

ATLAS-CONF-2023-056	Search for the exclusive W boson hadronic decays $W \rightarrow \pi\gamma$, $W \rightarrow K\gamma$ and $W \rightarrow \rho\gamma$ with the ATLAS detector
ATLAS-CONF-2023-053	A direct measurement of the Z boson invisible width at $\sqrt{s} = 13$ TeV with the ATLAS detector
ATLAS-CONF-2023-028	Precision measurements of W and Z transverse momentum spectra with the ATLAS detector at $\sqrt{s} = 5.02$ TeV and 13 TeV
ATLAS-CONF-2023-025	Revisiting the W -boson Mass Measurement using 7 TeV Proton-Proton Collisions with the ATLAS Detector

Tutorials

Sep 2023	Presenting the xFitter tutorial during the ATLAS Standard Model Workshop, Prague
Sep 2022	Presenting the xFitter tutorial during the ATLAS Standard Model Workshop, DESY, Hamburg

Sep 2019 | Presenting the `xFitter` tutorial during the ATLAS Standard Model Workshop, Belgrade

Organisation of scientific meetings

Oct 2024 | Convenor and discussion leader of the “MC simulation” session during the “Pushing the HighLumi-LHC” workshop (LNF, Frascati)

Sep 2024 | Convenor and discussion leader of the “Proton structure, small-x and large-x physics” session during the “ISMD2024” conference (Malargüe)

Sep 2024 | Convenor and discussion leader of the “Low x, PDFs and saturation” session during the “Diffraction and Low- x 2024” conference (Palermo)

Apr 2024 | Convenor and discussion leader of the “WG1: Structure Functions and Parton Densities” session during the 31st International Workshop on Deep Inelastic Scattering and Related Topics (Grenoble)

Sep 2023 | Convenor and discussion leader of the “New Experimental Results” session during the “QCD@LHC2023” conference (Durham)

Mar 2023 | Chair and discussion leader of various sessions from WG1 and WG4 during the 30th International Workshop on Deep Inelastic Scattering and Related Topics (Michigan State University)

Apr 2023 | Member of the organising committee of the “xFitter External meeting” (CERN) - workshop

Oct 2022 | Chair and discussion leader of various sessions during the ATLAS week (Lisbon)

Apr 2022 | Convenor and discussion leader of the “QCD” session during the “SM@LHC22” conference (CERN)

Mar 2022 | Member of the organising committee of the “xFitter External meeting” (IJCLab, Orsay) - workshop

Sep 2021 | Chair and discussion leader of a session during the “ATLAS Italia Young” workshop (online) - ATLAS workshop

Jul 2021 | Member of the organising committee of the ATLAS “W+c Analysis Team meeting” (Rome) - ATLAS workshop

May 2019 | Member of the organising committee of the ATLAS “Top Working Group Workshop 2019” (Frascati) - ATLAS workshop

Feb 2016 | Member of the organising committee of the “xFitter External meeting” (Oxford) - workshop

Outreach activities

Sep 2023 | Notte della Ricerca 2023

Sep 2023 | Author of the ATLAS Physics Briefing “ATLAS measures strength of the strong force with record precision”

Sep 2022 | Notte della Ricerca 2022

Jan 2022 | Author of the ATLAS Physics Briefing “Precise determination of the internal structure of the proton by ATLAS”

Sep 2021 | Notte della Ricerca 2021

Mar 2021 | Tor Vergata Particle Physics International Master Class

Mar 2020 | Tor Vergata Particle Physics International Master Class

Mar 2019 | Tor Vergata Particle Physics International Master Class

Mar 2018 | Oxford Particle Physics International Master Class

Jan 2018 | Stargazing Oxford 2018

Mar 2017 | Oxford Particle Physics International Master Class

Feb 2015 | “Exploring the high energy frontier at the LHC”, Morning of Theoretical Physics,
University of Oxford

Languages

Italian	Mother tongue
English	Proficient (C2-level)
Spanish	Fluent (B2-level)
French	Basic User (A2-level)
German	Basic User (A1-level)

Personal Skills & Competences

- **Operating Systems:** Linux (Ubuntu), MS Windows and macOS
- **Word Processing:** Latex, MS Word and Open Office.org Writer
- **Programming Languages:** BASH, C, C++, Python and basic knowledge of HTML, Perl and SQL
- **Scientific and Technical Libraries:** numpy, scipy, pandas, Tensorflow, Keras
- **Data Analysis and Fitting Framework:** HistFitter, LabVIEW, MINUIT, MS Office Suite, Origin, Qtiplot, ROOT, RooFit, RooStats, TRExFitter and xFitter (former HERAFitter)
- **MC Generators:** Cute+MCFM, DYTurbo, FastNLO, FEWZ, GENEVA, HERBVI, Herwig, MCFM, MG5_aMC@NLO, Powheg-BOX, Pythia8 and VBFNLO
- **HEP Software:** APFEL, APFEL++, APPLfast, APPLgrid, Fastjet, Geant4, HepMC, LHAPDF, PineAPPL and Rivet
- **Multivariate Analyses:** TMVA